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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,392	04/04/2001	Martin Weston	87805-9025-00	2929

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EXAMINER

TUCKER, WESLEY J

ART UNIT PAPER NUMBER

2623

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,392

Applicant(s)

WESTON ET AL.

Examiner

Wes Tucker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendments and Arguments

1. Applicant's response to the last Office Action, filed February 25, 2004, has been entered and made of record.

2. Applicant has amended Claims 1 and 5. Claims 1-7 are pending.

3. Applicant's arguments have been fully considered but are not persuasive for at least the following reasons.

4. Applicant argues that Kieu's disclosure of positive, negative and linear filter apertures (elements 110 to 126, in Figs. 5 and 6) detect slope and are not applied in response to slope. However Kieu still discloses the application of filters applied to edges after the edge directions have been detected (Fig. 2, elements 222 and 252). After the edge directions are determined in the edge direction selector (222) the appropriate filter is selected for the edge from the edge binary filters (252). The use of the binary edge filters is disclosed (column 12, lines 16-46). Therefore the rejection in view of Kieu is maintained and the rejection is made final.

5. With regard to applicant's arguments about the combination of U.S. Patent 5,003,618 to Meno et al. with U.S. Patent 6,181,382 to Kieu et al. applicant argues that there is no motivation to combine the two references in order to obtain the specific filter weightings claimed. However it should be noted that many different filter weighting

configurations are well known in the art for use in applying filter kernels and the features of having parts of the filter kernel sum to zero or sum to unity are well known. The filter kernels disclosed in Meno are an example of this. Therefore the 103 combination of Kieu and Meno rejection of claims 1-3 and 5-7 is maintained.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,181,382 to Kieu et al.

With regard to claim 4, Kieu discloses a video processing apparatus comprising a slope detector (Fig. 2, element 222) and a spatial filter (Fig. 2, element 252) having a positive filter aperture (Fig. 2, element 252 and Fig. 15, 45 and 30 degree filters), a linear filter aperture (Fig. 7) and a negative filter aperture (Fig. 2, element 252 and Fig. 15, -45 and -30 degree filters). Kieu discloses slope detectors and filters for various positive, negative, and linear slopes (column 12, lines 16-46).

Kieu further discloses the apparatus wherein the positive filter aperture is employed upon detection of any positive slope in excess of a defined positive threshold,

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the negative filter aperture is employed upon detection of any negative slope in excess of a defined negative threshold, and the linear filter aperture is employed otherwise (column 3, lines 50-65). Kieu discloses determining which filter is most appropriate for the given edge by passing the edge through a different filter for each edge and determining which filter most closely represents that edge. So the thresholds are interpreted as the values used to choose which filter output to use as the choice filter. The edge direction determination is then input into a filter as shown in Fig. 2, element 252 and Fig. 15.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 6,181,382 to Kieu et al. and U.S. Patent 5,003,618 to Meno.

With regard to claim 1, Kieu discloses a video processing apparatus comprising a set of spatial filter apertures (Fig. 2, element 252 and Fig. 15) and a slope detector (Fig.

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2, element 222), the apparatus selecting the appropriate filter aperture in accordance with the output of the slope detector and taking weighted contributions from pixels in the selected filter aperture (Fig. 2, elements 222 and 252 and Fig. 15). Kieu discloses a method where edge directions or angles are determined by passing the image through several spatial filters for several different angles (Figs. 5 and 6) and choosing the most appropriate filter according to the output of the angle specific filters (Fig. 2, elements 222 and 252, and Fig. 15). Kieu does not explicitly disclose the apparatus wherein the filter aperture weightings for each set of spatial filter apertures sum to unity over a line including the current pixel and sum to zero on each side of said line. Meno discloses automatic adaptive digital filtering wherein the weightings sum to unity over a vertical line and the weightings on either side sum to zero (Figs. 2 and 8). Meno teaches that the weightings are chosen in order to give an enhanced image without affecting contrast (col.1, lines 13-16). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to sum to unity the weightings as taught by Meno with the video processing apparatus of Kieu to achieve an enhanced image without affecting contrast.

8. With regard to claim 2, Meno discloses the line as a vertical line (Figs. 2 and 8).

9. With regard to claim 3, Meno and Kieu disclose the apparatus of claim 1. Meno explicitly discloses 4 different filter kernels (Figs. 2, 3, 7, and 8) and Kieu discloses 9 different filter kernels (Figs. 5 and 6). In both Meno and Kieu the filter is chosen

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depending on the slope of the edge as discussed with regard to claim 1. Although Meno and Kieu do not explicitly disclose exactly three different filters, they disclose a number and a selection of filters that perform the same function as applicant's invention. It would have been an obvious matter of design choice to have a three-kernel filter.

10. With regard to claim 5, Kieu discloses the apparatus according to claim 4, but does not disclose wherein in each said filter aperture weighted contributions are taken from pixels with the filter aperture weightings summing to unity over a line including the current pixel and summing to zero on each side of said line. Meno discloses these filter weighting characteristics (Figs. 2 and 8). Meno teaches that the weightings are chosen in order to give an enhanced image without affecting contrast (col.1, lines 13-16). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to sum to unity the weightings as taught by Meno with the video processing apparatus of Kieu to achieve an enhanced image without affecting contrast.

11. With regard to claim 6, Meno discloses the apparatus wherein the line is vertical (Figs. 2 and 8).

12. With regard to claim 7, the discussion of claim 3 applies.

Prior Art

13. Other prior art considered pertinent to applicant's invention but not relied upon is as follows:

U.S. Patent 6,427,031 to Price discloses a slope determined filter kernel selection.

Conclusion

14. Applicant's amendment necessitated the grounds of rejection presented in the Office Action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 703-305-6700.


The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wes Tucker

12-28-04


Jon Chang
Primary Examiner